AMENDMENTS TO THE CLAIMS

1-47. (Cancelled)

48. (Currently Amended) A method of conferring resistance to protoporphyrinogen oxidase-inhibiting herbicides upon plants or plant cells, comprising introducing a DNA fragment or a plasmid containing the DNA fragment into plants or plant cells or algal cells, wherein said DNA fragment has the following characteristics:

(1) said DNA fragment is 2.6 to 13.8 kb in length;

(2) said DNA fragment has a sequence that can be detected and isolated by DNA-DNA or DNA-RNA hybridization to a nucleic acid sequence that is complementary to a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:1, wherein said DNA-DNA or DNA-RNA hybridization occurs under 2X PIPES buffer, 50% deionized formamide, 0.5% (w/v) SDS, 500μg/ml denatured sonicated salmon sperm DNA at 42°C overnight; and said DNA fragment remains hybridized after washing in 0.2X SSC, 0.1% (w/v) SDS at 68°C[[,]];

(3) ~~wherein~~ said ~~sequence~~ DNA fragment encodes an amino acid sequence in which ~~the~~ an amino acid at ~~the~~ a position corresponding to position 13 of SEQ ID NO:1 is an amino acid other than valine; and

~~(3)~~ (4) said DNA fragment has an ability to confer resistance to protoporphyrinogen oxidase-inhibiting herbicides in plant or algal cells when introduced therein.

49. (Previously Presented) [[A]] The method ~~of conferring resistance to protoporphyrinogen oxidase inhibiting herbicides upon plants or plant cells, comprising introducing a DNA fragment or a plasmid containing the DNA fragment into plants or plant cells or algal cells~~ according to claim 48, wherein ~~said DNA fragment has the following characteristics:~~

~~(1) said DNA fragment is 2.6 to 13.8 kb in length;~~

~~(2) said DNA fragment has a sequence that can be detected and isolated by DNA-DNA or DNA-RNA hybridization to a~~ the nucleic acid sequence ~~that is complementary to a~~ encoding the amino acid sequence of SEQ ID NO:1 is the nucleotide sequence of SEQ ID NO:4, ~~wherein said DNA-DNA or DNA-RNA hybridization occurs under 2X PIPES buffer, 50% deionized formamide, 0.5% (w/v) SDS, 500μg/ml denatured sonicated salmon sperm DNA at 42°C overnight; and said DNA fragment remains hybridized after washing in 0.2X SSC, 0.1% (w/v) SDS at 68°C, wherein said sequence encodes an amino acid sequence in which the amino acid at the position corresponding position 13 of SEQ ID NO:1 is an amino acid other than valine; and~~

~~(3) said DNA fragment has an ability to confer resistance to protoporphyrinogen oxidase inhibiting herbicides in plant or algal cells when introduced therein.~~

50. (New) The method according to claim 48, wherein the plant is a dicot.

51. (New) The method according to claim 48, wherein the plant is a monocot.

52. (New) The method according to claim 48, wherein the plant is the green algae *Chlamydomonas.*

53. (New) The method according to claim 48, wherein the amino acid at the position corresponding to position 13 of SEQ ID NO:1 is methionine.

54. (New) The method according to claim 48, wherein said DNA fragment is 2.6 kb to 3.4 kb in length.

55. (New) The method according to claim 48, wherein said DNA fragment is 2.6 kb to 10.0 kb in length.

56. (New) The method according to claim 48, wherein said DNA fragment is obtained from a genomic DNA of a plant, or a plant cell or an algal cell.

57. (New) The method according to claim 48, wherein said DNA fragment is obtained from an algal cell.

58. (New) A plant or plant cells or green alga upon which resistance is conferred by the method according to any one of claims 48 to 57.

59. (New) A method of selecting plant or algal cells upon which resistance to protoporphyrinogen oxidase-inhibiting herbicides is conferred, which comprises:

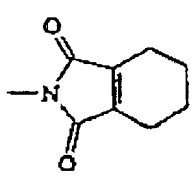
treating a population of plant or algal cells, upon which resistance to protoporphyrinogen oxidase-inhibiting herbicides is conferred by the method according to any one of claims 48 to 57, with a protoporphyrinogen oxidase-inhibiting herbicide in an amount which normally blocks growth of said plant or algal cells expressing only herbicide-sensitive protoporphyrinogen oxidase.

60. (New) A method of controlling plants lacking resistance to protoporphyrinogen oxidase-inhibiting herbicides in cultivating fields of crop plants upon which resistance to

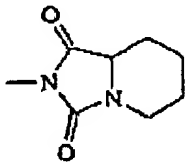
protoporphyrinogen oxidase-inhibiting herbicides is conferred by the method as described in any one of claims 48 to 57, which comprises:

applying to said field at least one protoporphyrinogen oxidase-inhibiting herbicide in effective amounts to inhibit growth of said plants lacking resistance to protoporphyrinogen oxidase-inhibiting herbicides.

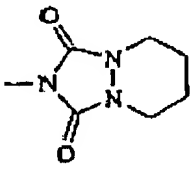
61. (New) The method according to claim 60, wherein the protoporphyrinogen oxidase-inhibiting herbicides to be applied are selected from the group of compounds of the formula X-Q, wherein Q is selected from the group consisting of:



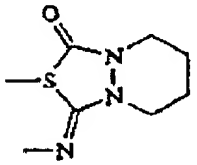
(Formula 1)



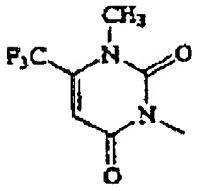
(Formula 2)



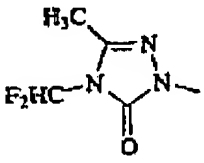
(Formula 3)



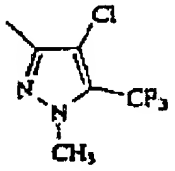
(Formula 4)



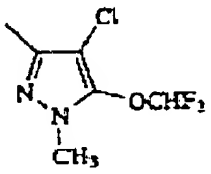
(Formula 5)



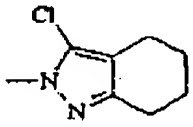
(Formula 6)



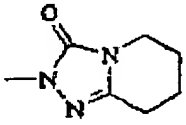
(Formula 7)



(Formula 8)

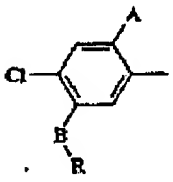


and



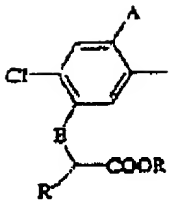
(Formula 9) (Formula 10)

and X is selected from the group consisting of:



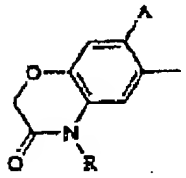
wherein
A = H, halogen
B = O, S
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

(Formula 11)



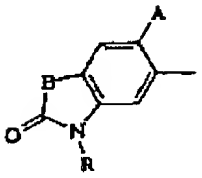
wherein
A = H, halogen
B = O, S
R' = H, CH_3
R = C_1-C_8 alkyl
C_3-C_8 alkenyl
C_3- C_8 alkynyl

(Formula 12)



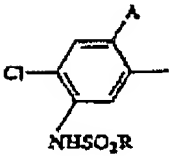
wherein
A = H, halogen
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

(Formula 13)



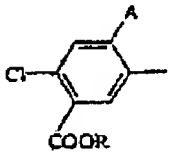
wherein
A = H, halogen
B = O, S
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

(Formula 14)



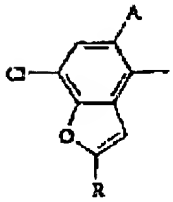
wherein
A = H, halogen
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

(Formula 15)



wherein
A = H, halogen
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

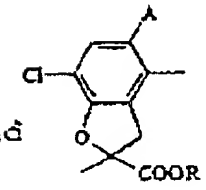
(Formula 16)



wherein
A = H, halogen
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

(Formula 17)

and

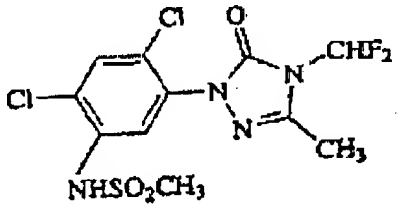


wherein
A = H, halogen
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

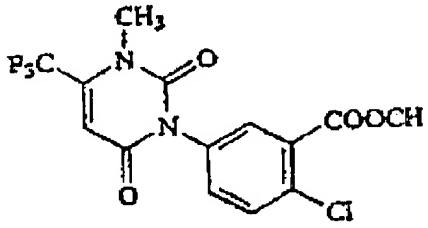
(Formula 18)

GMM/TJS/csm

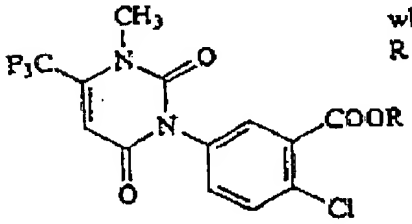
62. (New) The method according to claim 60, wherein the protoporphyrinogen oxidase-inhibiting herbicides to be applied is selected from the group consisting of the compounds of the formula:



(Formula 19)

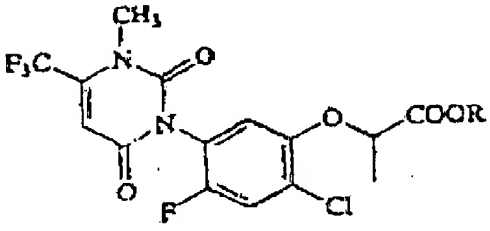


(Formula 20)



wherein
R = (C_2-C_5 alkenyloxy) C_1-C_4 alkyl

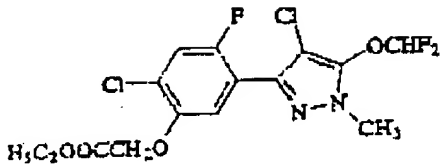
(Formula 21)



wherein
R = C_1-C_8 alkyl,
C_3-C_8 alkenyl,
C_3-C_8 alkynyl

(Formula 22)

GMM/TJS/csm



(Formula 23)

lactofen,

[N-(4-chloro-2-fluoro-5-propargyloxy)phenyl-3,4,5,6-tetrahydrophthalimide,

pentyl [2-chloro-5-(cyclohex-1-ene-1,2-dicarboximido)-4-fluorophenoxy] acetate,

7-fluoro-6-[(3,4,5,6,-tetrahydro)phthalimido]-4-(2-propynyl)-1,4-benzoxazin-3(2H)-one,

6-[(3,4,5,6-tetrahydro)phthalimido]-4-(2-propynyl)-1,4-benzoxazin-3(2H)-one,

2-[7-fluoro-3-oxo-4-(2-propynyl)-3,4-dihydro-2H-1,4-benzoxazin-6-yl] perhydroimidazo[1,5-a]pyridine-1,3-dione,

2-[(4-chloro-2-fluoro-5-propargyloxy)phenyl] perhydro-1H-1,2,4-triazolo-[1,2-a]pyridazine-1,3-dione,

2-[7-fluoro-3-oxo-4-(2-propynyl)-3,4-dihydro-2H-1,4-benzoxazin-6-yl]5,6,7,8-1,2,4-triazolo[4,3-a]pyridine-3H-one,

JS/csm

63. (New) An isolated DNA fragment which has the following characteristics:

(1) said DNA fragment is 2.6 to 13.8 kb in length;

(2) said DNA fragment has a sequence that can be detected and isolated by DNA-DNA or DNA-RNA hybridization to a nucleic acid sequence that is complementary to a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:1, wherein said DNA-DNA or DNA-RNA hybridization occurs under 2X PIPES buffer, 50% deionized formamide, 0.5% (w/v) SDS, 500 μg/ml denatured sonicated salmon sperm DNA at 42 °C overnight; and said DNA fragment remains hybridized after washing in 0.2X SSC, 0.1% (w/v) SDS at 68 °C;

(3) said DNA fragment encodes an amino acid sequence in which an amino acid at a position corresponding to position 13 of SEQ ID NO:1 is an amino acid other than valine; and

(4) said DNA fragment has an ability to confer resistance to protoporphyrinogen oxidase-inhibiting herbicides in plant or algal cells when introduced therein.

64. (New) The isolated DNA fragment according to claim 63, wherein the plant is a dicot.

65. (New) The isolated DNA fragment according to claim 63, wherein the plant is a monocot.

66. (New) The isolated DNA fragment according to claim 63, wherein the plant is the green alga *Chlamydomonas*.

67. (New) The isolated DNA fragment according to claim 63, wherein said amino acid other than valine is methionine.

68. (New) The isolated DNA fragment according to claim 66, wherein the DNA fragment is isolated from genomic DNA of *Chlamydomonas*, and wherein a nucleotide corresponding to position 37 (G37) of SEQ ID NO: 4 is a nucleotide other than guanine in the sequence of the DNA fragment.

69. (New) The isolated DNA fragment according to claim 68, wherein said nucleotide other than guanine is adenine.

70. (New) The isolated DNA fragment according to claim 63, wherein said DNA fragment is 2.6 kb in length.

71. (New) A plasmid comprising the DNA fragment according to claim 63.